

### **REMARKS**

Claims 1-13 have been elected with traverse, are currently pending in the subject application, and are presently under consideration. Claims 1-2 have been amended as indicated on p.2 of the Reply. Claims 13-27 have been withdrawn.

Applicants' representative would like to thank the examiner for indicating allowable subject matter of claim 12. The below comments present in greater detail distinctive features of applicants' claimed invention over the cited art that were described over the telephone on January 10, 2008.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

#### **I. Objection to Claim 12**

Claim 12 is objected to as being dependent upon a rejected base claim, but has been indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 12 has not been rewritten as prescribed but is believed to be in condition for allowance based on the amendment to claim 1 and arguments herein. Thus, reconsideration and withdrawal of the objection to claim 12 is respectfully requested.

#### **II. Rejection of Claims 1-3, 5-6, 10-11, and 13 Under 35 U.S.C. § 103(a)**

Claims 1-3, 5-6, 10-11, and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Myers (U.S. Patent Application Publication 2002/0113824) in view of Dworzak (U.S. Patent Application Publication 2003/0125936). Without conceding the propriety of or motivation for the combination, reconsideration and withdrawal of the rejection is respectfully requested, at least because Myers alone, or in combination with Dworzak, does not teach or suggest each and every limitation of applicants' claimed invention, nor does the combination render applicants' claimed invention obvious.

To reject claims in an application under § 103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some apparent reason to combine the known elements in the fashion claimed by the patent at issue (*e.g.*, in the

references themselves, interrelated teachings of multiple patents, the effects of demands known to the design community or present in the marketplace, or in the knowledge generally available to one of ordinary skill in the art. To facilitate review, this analysis should be made explicit. Second, there must be a reasonable expectation of success. ***Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.*** See MPEP § 706.02(j). See also *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. \_\_\_, 04-1350, slip op. at 14 (2007). The reasonable expectation of success must be found in the prior art and not based on applicant's disclosure. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

Applicants' invention relates to detecting duplicate or corrupted audio files to facilitate management and removal of such files. Accordingly, applicants disclose employing audio fingerprints to automatically manage redundant or corrupted audio files. In accordance with an aspect of the disclosed subject matter, a system for managing audio information can include a fingerprinting component to identify portions of audio files. Additionally, a detector can tag one or more of the audio files for potential removal from a data storage based upon a determined distance between the audio files. Moreover, the detector can tag the audio files based upon the distance being below a predetermined threshold or based upon a lowest distance analysis.

To that end, applicants disclose using a distance as a measure of how different two compared fingerprints are (and is zero if the two fingerprints are identical). For example, the two matched files could be remixes of the same song, and the distance could be correspondingly large, although still below threshold. Accordingly, in one aspect of the disclosed subject matter, the detector can determine whether to declare a match or not, based on distance between corresponding fingerprints. Thus, if the distance falls below a fixed threshold, then a match is declared, and in the alternative aspect, the lowest such distance (computed by comparing all fingerprints in a slop window to all fingerprints in the database) can be stored for further use.

Accordingly, applicants disclose that a first audio file can be loaded, a fingerprint starting at time offset into the audio file T can be computed and stored, and the name and location of the file can also be stored. See, e.g., p.7, ll. 20-25. In addition, applicants disclose a detector that loads a file and computes a series of fingerprints, starting at T-S seconds (e.g., where T and S, a time offset into the audio file and a duration of a time window, can be set by a user) into the file and ending at T+S seconds into the file for comparison against the fingerprint computed from the

first file. *See, e.g.*, p.6, ll. 19-29. If there is a match, then the detector notes that the two files contain the same audio by setting their ID index to the same number (*e.g.*, the first file processed has ID index set to 0), and then the detector moves on to the next file. *See, e.g.*, p.7, ll. 25-29. If there is not a match, the detector computes a fingerprint for the second file, starting at T-S+D seconds into the file, where D is a step size (*e.g.*, D=186 ms).

As a result, audio files can be identified as duplicates even though part of the beginning of one or both of the files may be missing. *See, e.g.*, p.8, ll. 1-5. For example, if a fingerprint F for an audio file is in the database, and a new file is being tested against F, only one of the fingerprints computed in the window (starting at T-S into the file and ending at T+S seconds into the file) need match F in order for a match to be declared. *Id.* Accordingly, the parameter S can be user selectable so that the user can balance the speed of duplicate detection against the robustness against removal of part of the beginning of one or both of the audio files. *See, e.g.*, p.8, ll. 6-15. Speed may also be further enhanced by specifying an ordering of the comparisons as follows: first check a fingerprint computed at T seconds into the file against the database of fingerprints, then check at T-D seconds, then at T+D, then at T-2D, then at T+2D, etc., until the entire window (of duration 2S seconds) has been checked. *Id.* In this manner, the most likely locations for matches are checked first, and the system can end the fingerprinting over the slop window when a match is found (*e.g.*, also called 'bailing'), thereby speeding up the process. *Id.*

In contrast, Myers merely discloses a graphic user interface (GUI) that is usable as a commercial digital jukebox interface. To that end, Myers discloses an owner-mode of operation which can allow a user to bring up a list of *duplicate song titles* that exist in the system. *See, e.g.*, paragraph [0042]. Accordingly, a privileged user can select one of the two duplicates, then press a "delete" button in order to remove the duplicate song from hard drive. *See, e.g.*, paragraph [0103].

In this regard, amended independent claim 1 provides a system for managing audio information, comprising a fingerprinting component and a detector. In particular, amended independent claim 1 recites the limitation: *a detector that tags one or more of the audio files for potential removal from a data storage device based in part upon a distance between a first corresponding fingerprint of a first audio file of the plurality of audio files to a second corresponding fingerprint of a second audio file of the plurality of audio files, the second corresponding fingerprint selection is selected from a series of corresponding fingerprints*

*computed for the second audio file based in part on a specified selection order.* Paragraphs [0042] and [0103] are cited for support that Myers generally discloses managing audio information and allowing duplicate deletion. Examiner concedes that Myers fails to enable one of ordinary skill in the art to practice the duplication detection and deletion operation since Myers is silent regarding how to detect duplicate audio files, but relies on Dworzak to provide this missing aspect. While applicants' representative generally agrees that Myers fails to enable one of ordinary skill in the art to practice the duplication detection as disclosed and claimed by applicants, applicants' representative submits that any duplicate detection as envisioned by Myers relies on detection of *duplicate song titles*. Thus, it cannot be said that Myers discloses the limitation as originally claimed by applicants.

In addition, applicants' representative respectfully submits that Dworzak does not cure the above-identified deficiencies of the root reference, Myers. Specifically, Dworzak merely discloses techniques for determining a characteristic data record for a data signal. In particular, Dworzak discloses scanning through a sound signal, for example, determining its frequency spectrum in a multitude of intervals, and reducing the data quantity a few data points. Subsequently, a certain time domain is selected, wherein the data points representing the frequency spectrum over this time domain serve as a "fingerprint" of the sound signal, thereby determining a characteristic data set for a data signal. Additionally, Dworzak suggests using the disclosed techniques for locating duplicates. *See, e.g.*, paragraph [0013]. For example, Dworzak paragraphs [0013] and [0040] is cited for support that Dworzak, in combination with Myers teaches that two fingerprints are marked as "identical" based on their distance, as determined by the sum of their squared differences.

However, while the cited paragraphs describe comparing "fingerprints", the "fingerprints" that are compared are derived *via* the disclosed techniques, which focus on reducing the data quantity to a few data points. As such, the Dworzak fingerprints to be compared amount to a weighted-average of frequency values over the entire region selected for fingerprint production – essentially a singular "aggregate" fingerprint for the entire song. *See, e.g.*, Figs. 2 and 3 and paragraphs [0027]-[0028]. For example, Dworzak discloses a technique based on scanning through the sound signal, determining its frequency spectrum in a multitude of intervals and reducing the data quantity to a few data points. *See, e.g.*, paragraph [0026]. By focusing on reducing data sizes to be stored and processed, the fingerprint is intended to be kept

small at all times. *See, e.g.*, paragraph [0027]. As a result, when Dworzak discusses fingerprint comparison in paragraph [0040], Dworzak merely discloses computing the sum of the squared differences formed in a point-wise manner (for the singular “aggregate” fingerprint data points). Thus, Dworzak is silent with respect to the recited limitations of applicants’ claimed invention.

In contrast, the recited limitations of independent claim 1 provides for a series of fingerprints to be computed that can be used to tag a potential matching audio file. Specifically, amended independent claim 1 recites: *a detector that tags one or more of the audio files for potential removal from a data storage device based in part upon a distance between a first corresponding fingerprint of a first audio file of the plurality of audio files to a second corresponding fingerprint of a second audio file of the plurality of audio files, the second corresponding fingerprint selection is selected from a series of corresponding fingerprints computed for the second audio file based in part on a specified selection order.* Thus, as claimed, if a match between a first fingerprint of a first file and a second fingerprint is not found, then the claimed subject matter facilitates comparing the first fingerprint with a third fingerprint of the second file (that is the second fingerprint in a series of fingerprints for the second file) according to a specified selection order as described above. As a result, applicants’ representative respectfully submits that Dworzak cannot be said to disclose the detector as claimed by applicants. Moreover, applicants’ representative respectfully submits that the disclosed characteristic data set for a data signal of Dworzak arguably teaches away from using a series of fingerprints for a file, and in any case, Dworzak does not cure the above-identified deficiencies of the root reference, Myers.

Regarding dependent claim 5, it is alleged that the limitation of about 64 floating point numbers is obvious, because the number has been shown as an example, because applicants’ note that other values could be used, or because the disclosed number is a matter of design choice. However, no support is provided for the proposition that applicants cannot specifically claim an embodiment of a disclosed invention, or that such disclosure in an exemplary manner or in an alternative manner makes the recited limitation obvious. For example, claim 5 recites the system of claim 1 further limiting the fingerprint component to a particular embodiment. Thus applicants’ representative respectfully submits that the contended propositions fail to support a conclusion of obviousness.

Regarding dependent claim 6, it is alleged that only the fingerprint datum is logically linked to any other system elements, and thus the other data correspond to nonfunctional descriptive material and are accorded weight only as general data within a database. Applicants' representative respectfully disagrees. For instance, dependent claim 6 recites: *the detector utilizes at least two internal databases referred to as DB1 and DB2, in DB1, a record comprises a fingerprint and associated numerical quantities including a normalization factor, in DB2, a record includes at least four objects: a filename, an associated index referred to as an ID index, an 'offset' parameter and a 'distance' parameter.* Therein, the detector of claim 1 utilizes the databases logically linking the detector with the databases, for which the records are logically linked to the respective databases. In addition any description of the record elements logically relate back to the detector through the logical links to records and so on. Thus applicants' representative respectfully submits that the alleged lack of logical linking fails to support a conclusion of obviousness.

Reconsideration and withdrawal of the rejection of independent claim 1 (and associated dependent claims 2-3, 5-6, 10-11, and 13) under 35 U.S.C. § 103(a) is respectfully requested in view of the comments above.

### **III. Rejection of Claims 4 and 7-9 Under 35 U.S.C. § 103(a)**

Claims 4 and 7-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Myers (U.S. Patent Application Publication 2002/0113824) in view of Dworzak (U.S. Patent Application Publication 2003/0125936), and further in view of Richards (U.S. Patent Application Publication 2003/0191764). Claims 4 and 7-9 are dependent claims that depend indirectly from independent claim 1. Without conceding the propriety of or motivation for the combination, reconsideration and withdrawal of the rejection is respectfully requested, at least because Richards does not cure the deficiencies of the root references, Myers and Dworzak, nor does the combination render applicants' claimed invention obvious.

Regarding dependent claims 4 and 7-9, Examiner concedes that the root references, Myers and Dworzak, does not teach using a time offset as recited in dependent claim 4, but relies on Richards to provide this missing aspect of applicants' claimed invention.

However, Richards merely discloses creation of digital fingerprints representative of the properties of a digital file such as a sound recording and subsequent comparison of the

fingerprints. To that end, Richards describes preprocessing the file at paragraph [0041], for example, to decompress a compressed file, performing DC offset correction, downsampling, and the like. In addition, Richards discloses advancing the audio file to the first non-noise sample prior to fingerprint generation. Advancing the audio file to the first non-noise sample prior to passing the stream to the fingerprint generation subsystem of paragraph [0041] is cited for support that Richards discloses using a time offset as recited in dependent claim 4.

In this regard, dependent claim 4 recites that *the fingerprinting component is disposed to accept a time offset into the audio file and a duration of a time window in the files*. Applicants' representative respectfully submit that advancing an audio file to the first non-noise sample prior to passing the stream to a fingerprint generation subsystem does not disclose or make obvious accepting a time offset as applicants claim. For instance, if the Richards fingerprint generation subsystem was merely sent a time offset and an audio stream, there would be no guarantee that the starting point for the Richards fingerprint generation subsystem would be the first non-noise sample as disclosed. Conversely, if an audio file had no non-noise samples, then the beginning of the file would be the start of fingerprint generations under Richards and the time offset would be non-existent. In contrast, the time offset as applicants claim facilitates a consistent starting point regardless of noisy or non-noisy lead in to the audio file. Thus, it cannot be said that Richards discloses using the time offset as claimed by applicants. Moreover, applicants' representative respectfully submits that the disclosed fingerprint system of Richards arguably teaches away from using a time offset. For example, at paragraph [0042] Richards describes that "[i]ncreasing the frame overlap percentage increases the robustness of the fingerprint, reduces sensitivity to window misalignment, and *can remove the need to sample a fingerprint from a known start point . . .*" In any case, applicants' representative respectfully submits that Richards does not cure the above-identified deficiencies of the root references, Myers and Dworzak, and thus claim 4 is believed to be allowable for at least the reasons cited above regarding independent claim 1.

Regarding dependent claims 7-9, the claims depend directly or indirectly from independent claim 1 and dependent claim 4, and thus the claims are believed to be allowable for at least the reasons cited above.

Reconsideration and withdrawal of the rejections of dependent claims 4 and 7-9 under 35 U.S.C. § 103(a) is respectfully requested, at least, in view of the comments above.

#### **IV. Response to Official Notice of Facts Not of Record**

Applicants' representative respectfully disclaims certain facts not of record and reserves the right to further argue such facts for which official notice has been taken in addition to the comments herein.

As noted by the court in *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)). In *Ahlert*, the court held that the Board properly took judicial notice that "it is old to adjust intensity of a flame in accordance with the heat requirement." See also *In re Fox*, 471 F.2d 1405, 1407, 176 USPQ 340, 341 (CCPA 1973) (the court took "judicial notice of the fact that tape recorders commonly erase tape automatically when new 'audio information' is recorded on a tape which already has a recording on it").

Ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge. See *In re Lee*, 277 F.3d 1338, 1344-45, 61 USPQ2d 1430, 1434-35 (Fed. Cir. 2002); *In re Zurko*, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001) (holding that general conclusions concerning what is "basic knowledge" or "common sense" to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection).

Regarding dependent claims 5 and 11, official notice is taken for certain portions of the claim limitations (e.g., use of floating point number generally, and error logging and reporting for file input/output errors). While applicants' representative believes that such claims are allowable for the reasons stated above, applicants' representative further submits that such factual allegations are not of the character that may rely upon official notice to support an obviousness rejection. In addition, even if capable of being shown by evidence, such allegations do not make obvious the limitations as applicants claim. For example, by analogy to the examples given above, the existence, use, or benefit of floating point numbers generally does not necessarily lead to the recited limitation of claim 5, nor does it make obvious the specifically



claimed use according to the recited limitation of claim 5. In other words, the recited limitation does not follow from the propositions that floating point number provide greater precision or were used generally prior to applicants' claimed invention, in the same manner that recording new audio information onto an audio tape necessarily causes existing audio information on the audio tape to be erased.

Thus applicants' respectfully request that evidentiary support be provided for the factual allegations that are directed to these specific features of applicants' claimed invention, and for which an obviousness conclusion is alleged to follow.

**CONCLUSION**

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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